DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATERSHED MANAGEMENT

PROPOSED AMENDMENTS TO THE
ATLANTIC COUNTY WATER QUALITY MANAGEMENT PLAN,
LOWER DELAWARE WATER QUALITY MANAGEMENT PLAN,
MERCER COUNTY WATER QUALITY MANAGEMENT PLAN,
MONMOUTH COUNTY WATER QUALITY MANAGEMENT PLAN
OCEAN COUNTY WATER QUALITY MANAGEMENT PLAN, AND
TRI COUNTY WATER QUALITY MANAGEMENT PLAN,

TO ESTABLISH 13 TOTAL MAXIMUM DAILY LOADS (TMDL's) FOR PHOSPHORUS FOR:
BURNT MILL POND, CUMBERLAND COUNTY
GIAMPIETRO LAKE, CUMBERLAND COUNTY
MARY ELMER LAKE, CUMBERLAND COUNTY
MEMORIAL LAKE, SALEM COUNTY
SUNSET LAKE, CUMBERLAND COUNTY
BELL LAKE, GLOUCESTER COUNTY
BETHEL LAKE, GLOUCESTER COUNTY
BLACKWOOD LAKE, CAMDEN COUNTY
HARRISONVILLE LAKE, SALEM COUNTY
KIRKWOOD LAKE, CAMDEN COUNTY
WOODBURY LAKE, GLOUCESTER COUNTY
IMLAYSTOWN LAKE, MONMOUTH COUNTY
SPRING LAKE, MERCER COUNTY

AND

TO ESTABLISH 27 TMDLs FOR FECAL COLIFORM FOR STREAM SEGMENTS THAT EXTEND INTO BURLINGTON, CAMDEN, CUMBERLAND, GLOUCESTER, MERCER, MONMOUTH, OCEAN, AND SALEM COUNTIES, AS LISTED IN TABLE 2.

Public Notice

Take notice that the New Jersey Department of Environmental Protection (Department) is seeking public comment on proposed amendments to the Atlantic County Water Quality Management Plan (WQMP), Lower Delaware (WQMP), Mercer, Monmouth and Ocean Counties WQMPs and the Tri-County

WQMP. The first set of amendments would establish thirteen total maximum daily loads (TMDLs) for phosphorus for the following waterbodies: Bethel Lake, Gloucester County; Blackwood Lake, Camden County; Burnt Mill Pond, Cumberland County; Giampietro Lake, Cumberland County; Mary Elmer Lake, Cumberland County; Memorial Lake, Salem County; Sunset Lake, Cumberland County; Bell Lake, Gloucester County; Harrisonville Lake, Salem County; Kirkwood Lake, Camden County; Woodbury Lake, Gloucester County; Imlaystown Lake, Monmouth County; and Spring Lake, Mercer County. The second set of amendments would establish 27 TMDLs for fecal coliform for stream segments that extend into Burlington, Camden, Cumberland, Gloucester, Mercer, Monmouth, Ocean and Salem Counties, as listed in Table 2.

Background

A TMDL represents the assimilative or carrying capacity of a waterbody, taking into consideration point and nonpoint source of pollutants of concern, natural background and surface water withdrawals. A TMDL quantifies the amount of a pollutant a water body can assimilate without violating a state's water quality standards and allocates that load capacity to known point sources in the form of wasteload allocations (WLAs), nonpoint sources in the form of load allocations (LAs), and, as applicable, reserve capacity and a margin of safety. A TMDL is developed as a mechanism for identifying all the contributors to surface water quality impacts and setting goals for load reductions for pollutants of concern as necessary to meet surface water quality standards (SWQS). TMDLs are required, under Section 303(d) of the Federal Clean Water Act, 33 U.S.C. 1313(d), to be developed for waterbodies that cannot meet water quality standards after the implementation of technology-based effluent limitations. TMDLs may also be established to help maintain or improve water quality in waters that are not impaired. Federal regulations concerning TMDLs are contained in EPA's Water Quality Planning and Management Regulations (40 CFR 130).

On September 16, 2002, the New Jersey Department of Environmental Protection (Department) and USEPA Region 2 entered into a Memorandum of Agreement (MOA), which superceded the previous MOA between the Department and EPA. These amendments would establish thirteen of the required TMDLs for eutrophic lakes, and twenty-seven of the required TMDLs for pathogen-impaired streams.

Each TMDL must be proposed and adopted by the Department as an amendment to the appropriate area-wide WQMP(s) in accordance with N.J.A.C. 7:15-3.4(g).

Amendment to establish thirteen phosphorus TMDLs to address eutrophic lakes

The State of New Jersey's *2002 Integrated List of Waterbodies* (35 N.J.R. 470 (a), January 21, 2003), identified several lakes in the Lower Delaware Water Region as being eutrophic, as indicated by elevated total phosphorus (TP), elevated chlorophyll-*a,* and/or nuisance macrophyte density. The proposed amendment would establish total maximum daily loads (TMDLs) for TP that address eutrophication of the lakes listed in Table 1.

Table 1 Eutrophic Lakes for which Phosphorus TMDLs are being established

TMDL Number	Lake Name	Municipality	WMA
1	Burnt Mill Pond	City of Vineland	17
2	Giampietro Lake	City of Vineland	17
3	Mary Elmer Lake	Bridgeton	17
4	Memorial Lake	Woodstown	17
5	Sunset Lake	Bridgeton	17
6	Bell Lake	Washington Township	18
7	Bethel Lake	Mantua Township	18
8	Blackwood Lake	Gloucester Township	18
9	Harrisonville Lake	Pilesgrove	18
10	Kirkwood Lake	Lindenwold	18
11	Woodbury Lake	Woodbury	18
12	Imlaystown Lake	Upper Freehold	20
13	Spring Lake	Hamilton	20

These TMDLs serve as the foundation on which restoration plans will be developed to restore eutrophic lakes and thereby attain applicable SWQS. A TMDL is developed as a mechanism for identifying all the contributors to surface water quality impacts and setting goals for load reductions for pollutants of concern as necessary to meet SWQS. The pollutant of concern for these TMDLs is phosphorus, since phosphorus is generally the nutrient responsible for excessive productivity of inland lakes leading to cultural eutrophication. The Department's Geographic Information System (GIS) was used extensively to describe the lakes and lakesheds (drainage basins of the lakes).

In order to prevent impairment of recreational, water supply and aquatic life designated uses; the Surface Water Quality Standards define both numerical and narrative criteria that address eutrophication in lakes due to excessive nutrients. Phosphorus sources for each lake were characterized on an annual scale (kg TP/yr) for both point and nonpoint sources. Runoff from land surfaces comprises a substantial source of phosphorus into lakes. An empirical model, developed by K.H. Keckhow Ph.D. and described in *Modeling Phosphorus Loading and Lake Response Under Uncertainty: A Manual and Compilation of Export Coefficients*, (Reckhow, K.H., M.N. Beaulac and J.T. Simpson, 1980, EPA 440/5-80-011), was used to relate annual phosphorus load and steady-state in-lake concentration of total phosphorus. To achieve the TMDLs, overall load reductions were calculated for each of the source categories. The implementation plan also calls for the collection of additional monitoring data and the development of a Lake Restoration Plan for each lake for which TMDLs are being established. These plans will consider what specific measures are necessary to achieve the nutrient reductions required by the TMDL, as well as what in-lake measures need to be taken to supplement the nutrient reductions required by the TMDL. In order to track effectiveness of remediation measures (including TMDLs) and to develop baseline and trend information on lakes, the Department will augment its ambient monitoring program to include lakes on a rotating schedule.

There are no point sources other than stormwater within the lakesheds of Bethel Lake, Blackwood Lake, Burnt Mill Pond, Giampietro Lake, Mary Elmer Lake, Memorial Lake, Sunset Lake, Bell Lake, Harrisonville Lake, Kirkwood Lake, Woodbury Lake, Imlaystown Lake, or Spring Lake. The TMDL identifies all the phosphorus contributions and establishes WLAs and LAs expressed as maximum annual loads for phosphorus necessary to meet surface water quality standards. WLAs were established for point sources of phosphorus, namely regulated stormwater runoff from medium/high density residential, low density/rural residential, commercial, industrial and mixed urban/other urban land uses. LAs were established for the major categories of nonpoint sources of phosphorus: runoff from nonurban land uses and air deposition onto the lake surface.

With the implementation of follow-up monitoring and development of Lake Restoration Plans through the watershed management process, the Department has reasonable assurance that New Jersey's Surface Water Quality Standards will be attained for these lakes. Activities directed in the watersheds to reduce nutrient loadings shall include a host of options, including but not limited to, education projects that teach best management practices, approval of projects funded by CWA Section 319 Nonpoint Source (NPS) Grants, recommendations for municipal ordinances to limit feeding of wildlife and impose pooper-scooper requirements, and stormwater control measures.

The proposed amendment consists of a detailed report that provides the technical and regulatory basis for these TMDLs, and is available from the Department as described below.

Background relating to the amendment to establish 27 fecal coliform TMDLs to address impaired streams

The State of New Jersey's *2002 Integrated List of Waterbodies* (35 N.J.R. 470 (a), January 21, 2003), identified several waterbodies in the Lower Delaware Water Region as being impaired by pathogens, as evidenced by the presence of high fecal coliform concentrations. The proposed amendment would establish 27 TMDLs addressing fecal coliform loads to the waterbodies identified in Table 2.

Table 2 Fecal coliform-impaired stream segments in the Lower Delaware Water Region, identified in Category 5 of the 2002 Integrated List of Waterbodies, for which fecal coliform TMDLs are being established.

TMDL Number	WMA	Station Name/Waterbody	County(s)
1	17	Little Ease Run at Porchtown	Gloucester
2	17	Indian Branch near Malaga	Gloucester
3	17	Maurice River at Norma	Salem
4	17	Maurice River near Millville	Cumberland
5	17	Cohansey River at Seeley	Salem, Cumberland
6	17	Salem River at Woodstown	Salem
7	17	Salem River at Courses Landing	Salem
8	17	Two Penny Run near Danceys Corner	Salem
9	18	NB Pennsauken Creek near Morrestown	Burlington
10	18	SB Pennsauken Creek at Cherry Hill	Camden, Burlington
11	18	Cooper River at Lidenwold	Camden
12	18	Cooper River at Haddonfield	Camden
13	18	NB Cooper River at Kresson	Camden, Burlington
14	18	SB Big Timber Creek at Glenloch	Camden, Gloucester
15	18	SB Big Timber Creek at Blackwood Terrace	Camden, Gloucester
16	18	NB Big Timber Creek at Glendora	Camden, Gloucester
17	18	Still Run near Mickelton	Gloucester
18	18	Raccoon Creek near Swedesboro	Gloucester
19	18	Oldmans Creek at Jessups Mill	Salem, Gloucester
20	18	Oldmans Creek at Porches Mill	Salem, Gloucester
21	19	Sharps Run at Rt 541 at Medford	Burlington
22	19	NB Rancocas Creek at Pine St at Mt Holly	Burlington
23	20	Crosswicks Creek at Groveville Rd.	Monmouth, Mercer, Burlington, Ocean
24	20	Doctors Creek at Allentown	Monmouth, Mercer
25	20	Bacons Creek near Mansfield Square	Burlington
26	20	Annaricken Brook near Jobstown	Burlington
27	20	NB Barkers Brook near Jobstown	Burlington

These twenty-seven TMDLs will serve as management approaches or restoration plans aimed at identifying the sources of fecal coliform and for setting goals for

fecal coliform load reductions in order to attain applicable surface water quality standards (SWQS).

As stated in N.J.A.C. 7:9B-1.14(c) of the New Jersey Surface Water Quality Standards for FW2 waters, “Fecal coliform levels shall not exceed a geometric average of 200/100 ml nor should more than 10 percent of the total samples taken during any 30-day period exceed 400/100 ml.” Nonpoint and stormwater sources are the primary contributor to fecal coliform loads in these streams and can include storm-driven loads transporting fecal coliform from sources such as geese, farms, and domestic pets to the receiving water. Nonpoint sources also include steady-inputs from sources such as failing sewage conveyance systems and failing or inappropriately located septic systems. Because the total source contribution from sewage treatment plants is an insignificant fraction of the total load, these fecal coliform TMDLs will not impose any change in current practices for Sewage Treatment Plants and will not result in wasteload allocations or changes to existing effluent limits for these facilities.

Using ambient water quality data, summer and year-round geometric means were determined for each waterbody segment in the Lower Delaware water region included on Sublist 5 of the 2002 *Integrated List of Waterbodies* (also known as the 303 (d) list) based on water quality monitoring conducted during the water years 1994-2000. Given the two-part surface water quality criteria of 200 CFU/100 ml and 400 CFU/100 ml applicable to fecal coliform in FW2 waters, computations were necessary for both criteria, which resulted in two values for percent reduction for each stream segment. In order to assure compliance with the SWQS the higher (more stringent) percent reduction value was selected as the TMDL and will be applied to nonpoint and stormwater sources as a whole.

The TMDL report provides extensive information to assist with more specific identification of sources. Load duration curves, which are useful in identifying and differentiating between storm-driven and steady-input sources, are provided for

stream segments for which streamflow gauge information is available. The Department, in collaboration with the local Technical Advisory Committees, narrowed the potential primary sources of fecal coliform contamination to these waterbody segments to the following:

Non-Human Sources of Fecal Coliform

- Canada geese, pest waterfowl and other wildlife
- Pet Waste
- Stormwater basins which can act as accumulation points of fecal matter (from pets, waterfowl and wildlife)
- Direct stormwater discharges to waterbodies
- Farms, zoos

Human Sources of Fecal Coliform

- Malfunctioning or older improperly sized septic systems
- Failing Sewerage Conveyance Systems
- Improper garbage storage and disposal

In addition, other potential sources of fecal contamination specific to each stream segment are identified in the TMDL report. When bacterial sources are adequately identified, Best Management Practices (BMPs) specified in the TMDL Report for each source category will be applied to reduce bacterial loading to meet the SWQS. When bacterial sources are not easily identifiable, the TMDL requires bacterial source tracking (advanced chemical, biochemical and molecular monitoring methods) to be used in conjunction with the resulting percent load reduction and load duration curves to further identify pathogen sources.

TMDL's include both short-term and long-term management stategies. Short-term management strategies include existing projects funded by the Department to address fecal impairments to an impaired waterbody. These projects for the most part include stream bank restoration projects, stormwater retrofits,

implementation of BMPs and monitoring. Nonpoint Source Pollution Control and Management Implementation Grants have been awarded by the Department since 1995 to local and regional organizations for projects that implement management practices for nonpoint source control.

While short-term management measures will begin to reduce sources of fecal coliform in the Lower Delaware Region, additional measures will be needed to verify and further reduce or eliminate these sources. Long-term management strategies are provided for each source category. Long-term strategies include, for instance, the development of Stormwater Management Plans and Canada Goose Damage Management Plans.

The proposed amendment consists of a detailed report that provides the technical and regulatory basis for these TMDLs, and is available from the Department as described below.

Public Comment Information

This notice is being given to inform the public that these two plan amendments have been proposed for the Atlantic County WQMP, Lower Delaware WQMP, Mercer, Monmouth and Ocean Counties WQMP and the Tri County WQMP. All information related to these proposed amendments is located at the Department, Division of Watershed Management, PO Box 418, 401 East State Street, Trenton, New Jersey 08625-0418. If you wish to receive a copy of the draft TMDLs that establish 13 phosphorus TMDLs and 27 fecal coliform TMDLs, call the Division of Watershed Management at (609) 633-1441 or download the files from: http://www.state.nj.us/dep/watershedmgt/publications.htm. The Department's file is available for inspection between 8:30 a.m. and 4:00 p.m., Monday through Friday. An appointment to inspect the documents may be arranged by calling the Division of Watershed Management at (609) 633-3812. Additional copies of the amendments may be also obtained by calling this

number. An electronic copy of the TMDL Report may be requested via electronic mail sent to: H20SHED@dep.state.nj.us.

Interested persons should submit written comments on the proposed amendments to Barbara Hirst, Bureau Chief, New Jersey Department of Environmental Protection, Division of Watershed Management, P.O. Box 418, 401 East State Street, Trenton, New Jersey, 08625. All comments must be submitted within 15 days following the public hearing noted below. The Department shall consider all comments submitted prior to the close of the comment period in the reviewing of the amendments.

The Department requests that commenters who have access to current word processing software additionally submit comments on this proposed amendment electronically using a 3½-inch diskette mailed to the address above or via electronic mail sent to the Department at H20SHED@dep.state.nj.us. The preferred word processing software for submitting comments is Microsoft Word for Windows 97. Any commenter who wishes to use other software is encouraged to contact Ms. Hirst to check for compatibility (609-633-1441). MacIntosh formats should not be used. Submission of a diskette or via electronic mail in addition to the written comment is not required.

The Department is holding a public hearing on the proposed amendments at the following time and place:

Date:	May 22, 2003
Time:	7:00 pm. The public hearing will be held until 9:00 pm or the end of testimony, whichever is earliest.
Location:	Rowan State University Rowan Hall Auditorium 201 Mullica Hill Road Glassboro, New Jersey 08028

_____
Lawrence J. Baier, Director
Division of Watershed Management
Department of Environmental Protection

_____
Date